



AWIPS II Application Development, a SPoRT Perspective

Jason E. Burks

NASA Marshall Space Flight Center / Earth Science Office, Huntsville, Alabama

Matthew Smith

University of Alabama in Huntsville, Huntsville, AL / NASA Short-term Prediction Research and
Transition (SPoRT) Center, Huntsville, Alabama

Kevin M. McGrath

Jacobs Technology, Inc. / NASA Short-term Prediction Research and Transition (SPoRT) Center,
Huntsville, Alabama

30th Environmental Information Processing Technologies Conference
94th AMS Annual Meeting (2014) in Atlanta, GA
Session: "AWIPS II System Update"



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SPoRT AWIPS II Development

- Plug-in development
- Data ingest
- EPDT



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SPoRT

- Short-term Prediction Research and Transition Center
- NASA / MSFC Huntsville, AL
- Paradigm: Problems ➡ Solutions
 - NASA/NOAA Data and Technology
 - Operational NWS Short-term Forecasts
 - Use Native Decision Support System
 - Feedback Loop with Forecasters for Improvement
- 2003
 - 9 WFOs primarily in Southern Region
- 2014
 - 28 WFOs in 5 NWS Regions; 5 National Centers



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SPoRT Features

- Lightning Mapping Array
- Lightning Tracking Tool
- Convective Initiation (UAHCI)



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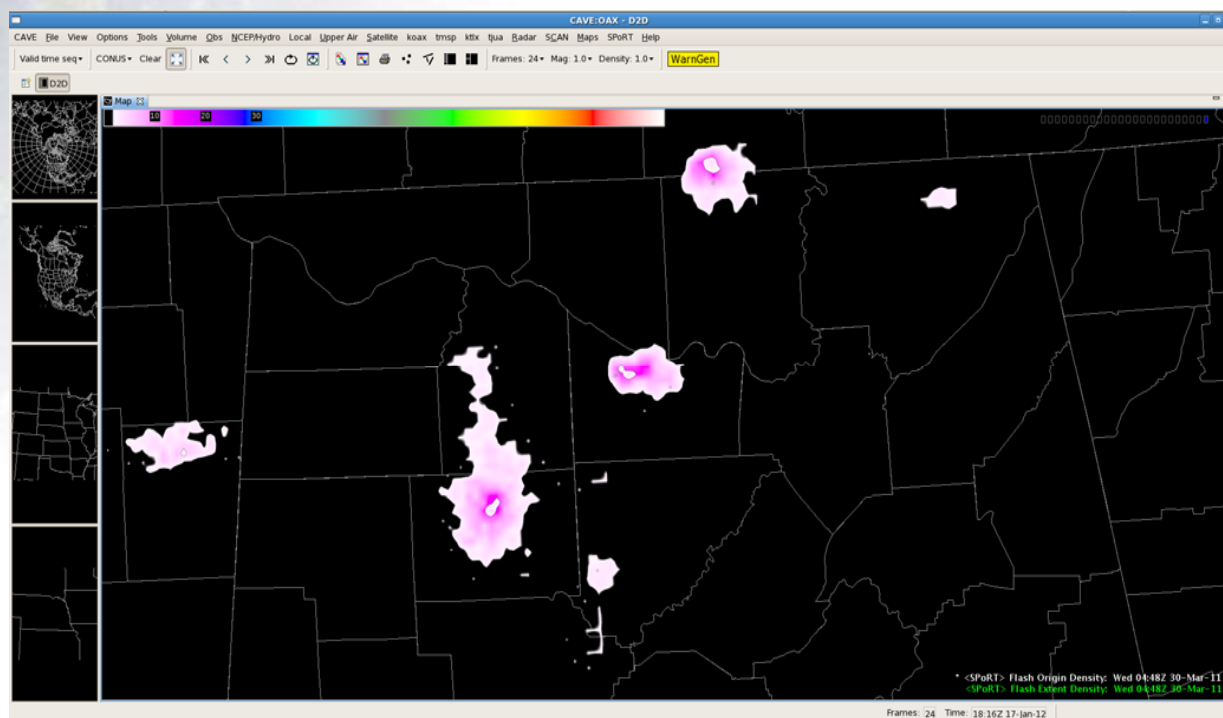


Lightning Mapping Array

Total lightning data from Lightning Mapping Arrays (LMAs) is 3-Dimensional, unable to be brought into AWIPS I - except as model data. We expect to make use of future AWIPS II 3D capabilities

LMA data is generated as ASCII, but we write as unique NetCDF – requiring a new EDEX plug-in

- Plugin is currently in testing at several NWS Offices
- Base-lined in near future



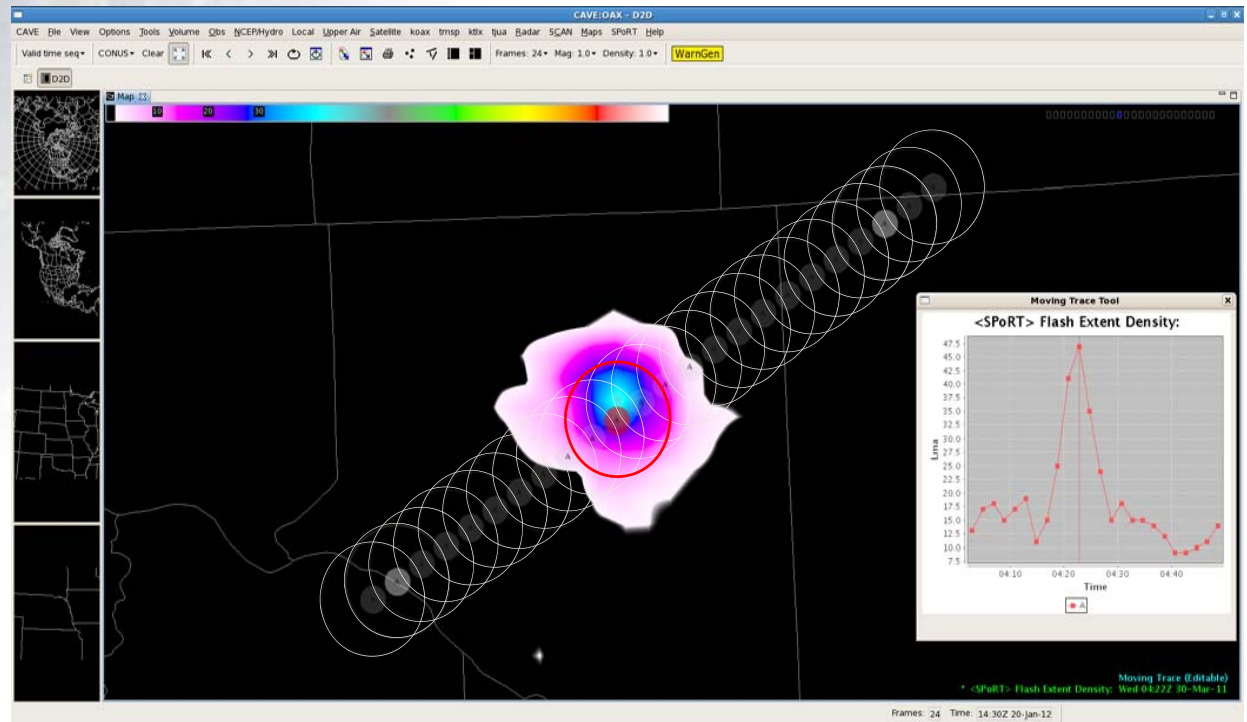
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Lightning Tracking Tool

Total lightning *jumps* are at times related to severe weather. Forecasters need to quickly track several storms separately, tracking their intensity

- Track multiple cells
- Variable radii
- Adjustable storm tracking
- Color-coded chart for each data layer
- Extrapolation for new data (frames)



- Adjustments after Hazardous Weather Testbed (HWT) feedback
- ORPG testing April, 2014
- Base-lined in near future



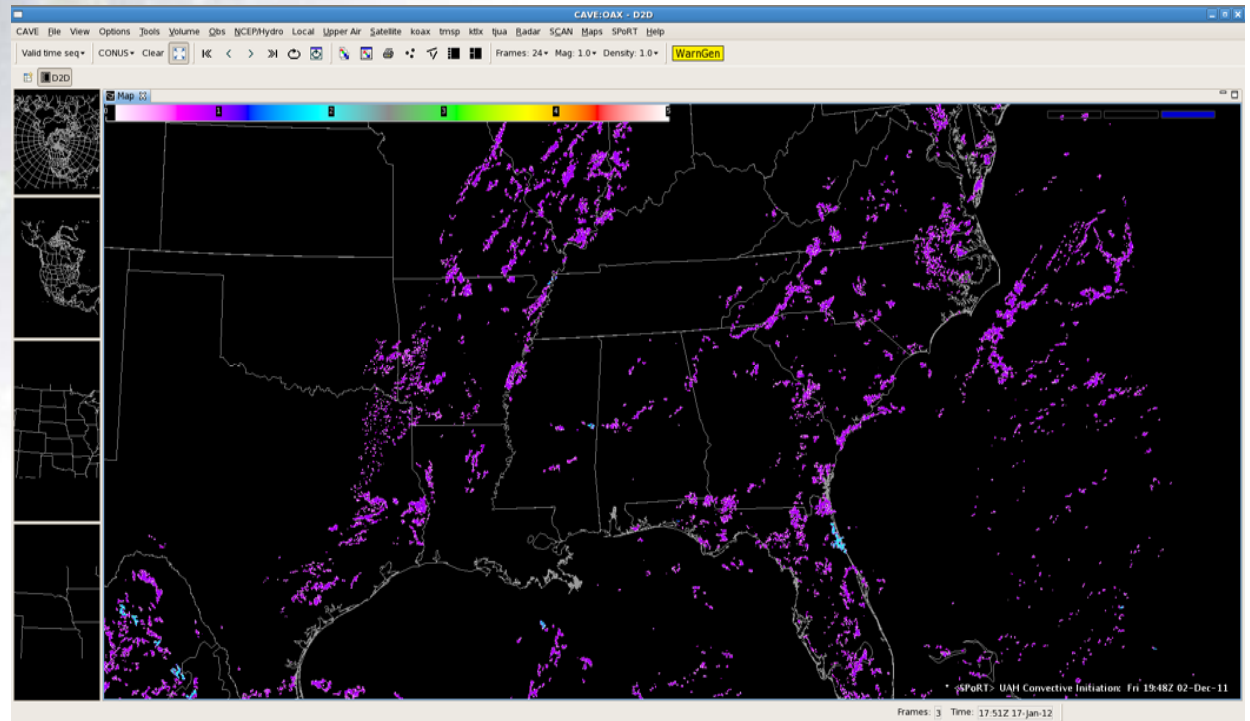
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Convective Initiation

GOES-based data set
generated at UAHuntsville
for short-term forecasts of
convection.

Ingested using the grib2
plugin.



Experimental Products Development Team

GOES-R EPDT

- **SPoRT (in-house) EPDT formed to focus on creating advanced display capabilities for NASA research data in AWIPS II environment**
 - *non-standard software (plug-ins) for data ingest and display*
 - *tool development for data fusion to obtain maximum information content*
 - *AWIPS II architecture flexible and can support external plug-in and tool development*
 - *need to develop expertise to facilitate this*
- **Some specialized AWIPS II plug-ins have been developed, tested, implemented with SPoRT collaborative partners**
- **Identified need within GOES-R PG team to better integrate GOES-R proxy products into AWIPS II environment**
- **Developed GOES-R PG EPDT AWIPS II concept document**
 - *refined and then endorsed by NWS/OST Systems Engineering Center (SEC) Development Branch*
 - *Implemented Fall 2012*



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Experimental Products Development Team

GOES-R EPDT

Goal:

- Bring together staff from NASA, NOAA's CIs, and NWS to develop a critical mass of technical expertise (outside of Raytheon's AWIPS II development team) which would focus on the development, demonstration, and transition of new plug-ins and tools to address the near-term needs of the GOES-R PG community

Objectives:

- create a community environment to develop and share knowledge and expertise in the AWIPS Development Environment (ADE)
- generate non-standard AWIPS II plug-ins for the ingest, analysis, and display of GOES-R proxy data in AWIPS II and associated tools which better display GOES-R data and allow for the fusion of the new data with legacy AWIPS data streams
- based on this experience, provide feedback to NWS and Raytheon on the external development process, including governance of locally developed AWIPS II software



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Experimental Products Development Team

GOES-R EPDT

- Hands-on team to learn by doing
- Limited in size to facilitate small group learning and development activities – develop into a “train the trainer” team
- One representative (each) from:
 - *NWS Regions*
 - *NOAA Cooperative Institutes (and SPoRT)*
 - *MDL and GSD*
 - *Raytheon*
 - *NWS SEC*
 - *GOES-R PG AWIPS II developer*
- Organizational leads asked to nominate team member with appropriate qualifications
- Team Lead: *Jason Burks (NASA scientist and decision support system expert), formerly HUN WFO ITO*
- Advisor: *Ed Mandel (NWS/OST SEC Development Branch Chief)*
- Bimonthly conference calls/ WebEx sessions
- Biannual workshops at SPoRT AWIPS2 Development Facility
- NWS and NASA have agreed to share costs associated with this team (travel and resources)



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EPDT Spring 2013 meeting

- Conference calls leading up to meeting.
- March 12th- 14th, 2013
- “Hands-on” Learning
- Topics covering Plug-in development from EDEX to CAVE.
- Exercises
- 14 attendees
- Feedback indicated a very successful meeting.
- Training was recorded and provided back to NWS




EPDT Fall 2013 Meeting

- Sept 24 - 26, 2013
- Code Sprint format
- EPDT subgroups worked on projects
 - Moving Meteogram
 - RGB Recipe
 - mPing ingest and display
 - Mini-EDEX
- Significant progress and furthered learning



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Group B

- Group has been selected
 - 15 attendees
 - Groups involved include:
 - NWS SEC, NWS OH, NWS MDL, SSEC, CIRA, CIMMS/NSSL, NOAA GSD
- Meeting planned for March, 2014
- Conference calls have begun
- Spring Meeting planned with learning similar to Spring 2013 meeting for Group A

Future EPDT

- Second learning workshop as follow-on to training for Group A
- Merge Group A and Group B conference calls after Spring Meeting
- Code Sprint in Fall 2014 for:
 - Group A
 - Group B



Questions



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